Courses on
HIGH SPEED COMPUTERS
and
DATA PROCESSING

This year three Courses on electronic digital computers and high speed data processing are being offered by the Department of University Extension in co-operation with the Computation Centre. Since these Courses were first offered, they have had wide acceptance. The Course content has been both interesting and valuable to those already working with electronic computers or to those wishing to learn about them.

University Extension appreciates the invaluable guidance and co-operation of the Computation Centre—the Director, and Head, Department of Physics; Dr. W. H. Watson—the Chief Computer; Dr. C. C. Gotlieb, who has arranged the programme and will direct it—and the Staff of the Centre and other University Departments who will assist in the direction of the programme and the lecturing.

REGISTRATION:

By mail or in person at Room 108, 65 St. George St.

In order to accommodate students and enable them to enrol during the evening, registrations will be taken—

Thursday, September 12th

Tuesday, September 17th

Thursday, September 19th

Tuesday, September 24th

Thursday, September 26th

Tuesday, October 1st

evenings, from 7:30 p.m. to 9 p.m. in the Wallberg Building, corner St. George and College Streets.

Programme

HIGH SPEED DATA PROCESSING

Data Processing Systems:	*Number of Lectures:*
Requirements of a Data Processing System	
Representation of Information	
Arithmetic Unit	
Store	7
Control	
Input Output Devices	
Instruction Code	

Coding and Programming:	
Analysing, Programming and Coding	
Coding Examples	
Comparative Study of Machine Techniques	
Reliability and Checking	7
File Processing	
Sorting	
Automatic Programming	

Applications in some of the following areas will be studied:	
Inventory Maintenance	
Insurance	
Production Control and Scheduling	
Transportation Assignment	5
Warehouse Operation	
Banking	
Utility Accounting	

Symposium	1

UNIVERSITY OF TORONTO
UNIVERSITY EXTENSION
in co-operation with the
COMPUTATION CENTRE

COURSES IN

HIGH SPEED COMPUTERS
and
DATA PROCESSING

Session 1957-58

PROGRAMMING
FOR DIGITAL COMPUTERS

This is a laboratory course on programming and coding for high speed data processing systems. It is assumed that those enrolling will already have had an introductory general course. At each session there will be sample problems worked out by the instructors followed by practice exercises to be worked through by those participating. It is expected that a supervisor will be provided for each ten or twelve students enrolled. Arrangements will be made to run problems on FERUT, the University of Toronto electronic computer, on the IBM 650, and on other machines which might be made available elsewhere. For most of the course emphasis will be placed on general methods applicable to any machine. The latter part of the course, however, will treat a number of commercially available machines; members of the class will be asked to indicate interest in one of them and join the discussion on it.

Selections will be made from the following topics:

Arithmetic Processes
Binary Arithmetic
Machine Instruction Codes
Flow Diagrams
Subroutines, Linking and Relative Addressing
Input Organization Routines
Interpreters and Compilers
Checking and Rescue Methods
Sorting
Optimum Programming
Calculation of Machine Operating Time
File Processing

LECTURERS: J. H. Chung, M.A., Ph.D.
Department of Mathematics.
Professor C. C. Gotlieb, M.A., Ph.D.
Computation Centre.
Professor B. A. Griffith, M.A., Ph.D.
Department of Mathematics.
Professor J. N. P. Hume, M.A., Ph.D.
Department of Physics.
J. Kates, M.A., Ph.D.
KCS Data Control.

TIME: Thursdays, 7:30 p.m. October 10th to December 12th; January 9th to March 13th.

PLACE: Mechanical Building, Room T402.

FEE: $75.00.

HIGH SPEED DATA PROCESSING

This introduction to modern high speed data processing systems is being offered for the fourth time. The course provides general background on the uses of stored programme electronic data processors in business problems. It is divided into three approximately equal sections: data processing systems, coding and programming, and applications. The section on systems is a study of the components and principles of electronic data processors. That on coding and programming introduces terminology and new ideas through a few simple problems. The last section is about the application of these new methods to insurance, inventory control, accounting, production scheduling, etc. Throughout, a special effort is made to concentrate on methods which are generally valid on modern machines and widely applicable. The course terminates with a symposium, in which representatives of manufacturing and other organizations active in this field in Canada are invited to participate. (Programme on reverse side.)

Applicants need not have specialized knowledge of mathematics nor any knowledge of electronics. They should, however, have some interest and experience in a field where the handling of numerical data is important, such as accounting, banking, business management, investment financing or insurance.

LECTURERS: Professor C. C. Gotlieb, M.A., Ph.D.
Chief Computer, Computation Centre.
Professor J. N. P. Hume, M.A., Ph.D.
Department of Physics.

TIME: Thursdays, 7:30 p.m. October 10th to December 12th; January 9th to March 13th.

PLACE: McLennan Laboratory, Room 132.

FEE: $35.00.

ENGINEERING TECHNIQUES
FOR DIGITAL COMPUTERS

This Course of lectures is intended for electrical and other engineers interested in the design and structure of equipment using computing techniques. Those who enrol are expected to have some general knowledge of electronics and circuits; methods which have been especially developed for computers are described from first principles.

In the past the lectures have been given by representatives of companies who are actively engaged in the construction and design of computing equipment. This year the Course has been extended to twenty lectures and Professor R. W. McKay of the Department of Physics will intersperse lectures to make the Course connected and comprehensive. The following topics will be discussed:

Binary Arithmetic
Logical Elements
Switching Algebra
Circuit Techniques for Realization of Logical Elements
Arithmetic Units
Storage Media
Magnetic Drum and Tapes
Input Output Devices
Machine Organization
Maintenance Techniques and Machine Reliability
Analog Digital Conversion Devices
Application to Sample Data Control Systems
Recent Developments

In the past, members of the following companies and organizations have participated as speakers:

Computation Centre, University of Toronto
Burroughs Adding Machines of Canada Limited, Electrodata Division
Department of Electrical Engineering, University of Toronto
Ferranti Electric Company
International Business Machines Company Limited
K.C.S. Data Control Limited
Remington Rand Limited

COURSE DIRECTOR: Professor R. W. McKay, M.A., Ph.D.
Department of Physics.

TIME: Thursdays, 7:30 p.m. October 10th to December 12th; January 9th to March 13th.

PLACE: McLennan Laboratory, Room 106.

FEE: $35.00.